

— FOR HISTORICAL REFERENCE ONLY —  
The data and specifications in this document  
must not be relied upon in any way.

# Operating Instructions for the



The world's finest self-contained underwater breathing unit



**Y**OUR Scott Hydro-Pak is a precision unit made to most exacting standards by one of the world's leading breathing equipment manufacturers. You can use it with the assurance that you are enjoying the ultimate in self-contained diving safety, comfort and convenience.

It is ideal for underwater exploration, fishing, adventuring, salvage, rescue work, marine repairs and photographic work.

The Hydro-Pak is a compact unit, complete in itself permitting full independence and freedom of movement.

Compressed Air, not oxygen, is used to avoid the danger of oxygen poisoning possible at depths below 35 feet. The exclusive Scott Demand Regulator supplies pure fresh air for each breath. Used air is expelled on each exhalation—there is no rebreathing of stale air.

The Hydro-Pak is the only unit with a full face mask, single small-diameter breathing hose, "Air Econo-miser," water ejection button, full back plate and the famous Scott Demand Regulator.

About 95% of all underwater swimming is done in water less than 50 feet deep where the most beautiful and abundant marine life is to be seen. While the Hydro-Pak can be used at depths greatly in excess of 50 feet, the manufacturers do not recommend its use by amateurs beyond that depth. No diving unit should be used for deepwater operation except by skilled and experienced divers.

This manual of operating instructions cannot, of course, cover every aspect of underwater swimming in connection with the Hydro-Pak. It is intended only as a guide for use in familiarization with the unit.

We recommend that you become thoroughly familiar with every aspect of Hydro-Pak operation in clear, chest deep water. Here you can become proficient in a short time so that you will have the confidence necessary to become an expert underwater swimmer.

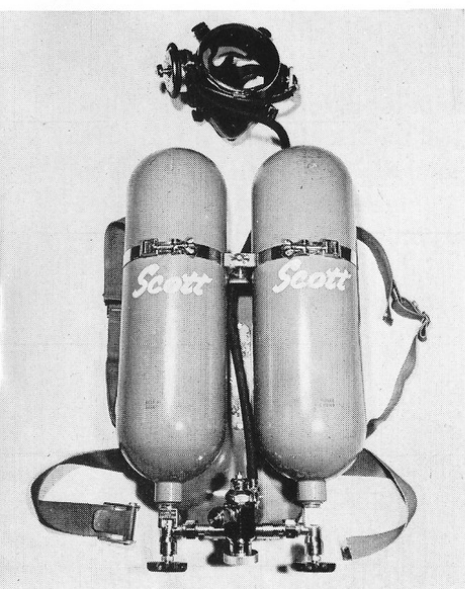
# Scott

## HYDRO-PAK

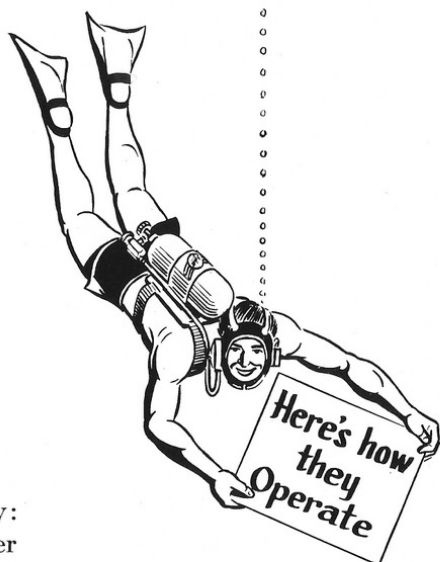


### SINGLE CYLINDER MODEL

Air capacity: 50.4 cubic feet.



**DOUBLE CYLINDER MODEL** Air capacity:  
100.8 cubic feet. For operations of longer  
duration.



# HYDRO-PAK

## Operating Instructions



Natural rubber, full face mask with  $5\frac{1}{2}$ " safety glass lens. Special design gives perfect waterproof face seal, with or without rubber suit. Pull end-tabs of straps to tighten. To release head straps, push *buckles* away from head with finger tips.

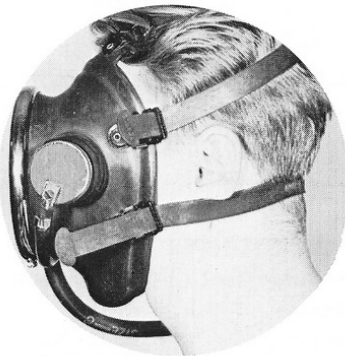
The famous Scott Demand Regulator gives you easy, natural breathing in any position. Supplies all the air "demanded" on inhalation,—stops during exhalation. Its placement on the side of the face opposite the exhalation valve provides the proper pressure balance for perfect comfort and prevents accumulations of  $\text{CO}_2$ . The Scott Demand Regulator adjusts to the diver and the water depths automatically. It requires no attention from the wearer while in use.



All metal regulator parts are stainless steel for the ultimate in corrosion protection. Regulator is designed to open easily for cleaning and inspection. This exclusive feature always assures you of perfect regulator operation under most severe conditions.



The exhalation valve assures fine breathing-cycle balance. Automatically adjusts for various depths. Prevents constant flow exhalation in any position. Exhaled air does not interfere with vision.





Water Ejector Button eliminates any water from mask. To operate, just lift edge of mask under chin and press button at same time. The stream of air released by the button momentarily increases mask pressure—forcing water out. Tilting head to left and snorting will also rid mask of water through exhalation valve. These procedures should be learned in shallow water before attempting them in deep water. With practice, mask may be entirely removed, replaced and cleared underwater.

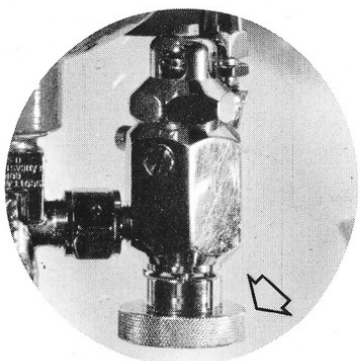
“Air Econo-miser” for conserving air supply while diver’s head is out of water. Permits breathing surrounding atmospheric air. To operate, just turn valve at top. When “Air Econo-miser” is open, demand regulator will not operate out of water. If you forget to close “Air Econo-miser” when entering water, escaping air bubbles will remind you to close it.



Slip into Hydro-Pak harness like putting on a vest. Adjust shoulder straps comfortably and fasten belt to your waist size. Harness includes belt and shoulder strap quick-release devices.

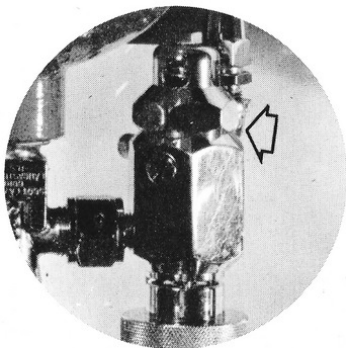
Positive-Lock Cylinder Clamp. Simply raise lever to release bottle for recharging or replacement. To release cylinders of double model, detach manifold and loosen *all three* wing nuts. In replacing, connect manifold and tighten bands. Tighten center wing nut last to be sure there is no strain on the manifold.





Reserve Air Supply Valve. See that pointer is in indentation before entering water. When air supply diminishes to remaining  $\frac{1}{4}$  tank, increased breathing resistance is the signal for you to turn on the air reserve valve, thereby making the last  $\frac{1}{4}$  of the air supply available for use.

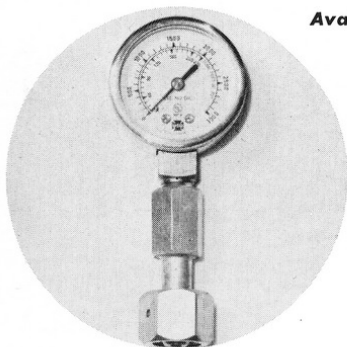
Each air cylinder is tested to 3000 pounds of pressure per square inch to meet I.C.C. requirements for charging to 1980 p.s.i. At 1980 p.s.i., each cylinder contains 50.4 cubic feet of compressed air. Duration time under water for each cylinder is up to one hour, depending upon depth, amount of exertion, and temperature of water.



Pressure Reducing Regulator. Reduces cylinder pressure for delivery to air hose at low pressure. Do not attempt to adjust regulator yourself. It is factory set for correct operation.

## HYDRO-PAK ACCESSORIES

*Available at extra cost*



8365 Pressure Gage. Accurate brass gage with glass face and Hydro-Pak fitting. Coupling attaches to air cylinders for checking pressure. Also fits dual cylinder charging fitting for checking pressure without removing cylinders from unit.

8366 Charging Hose Assembly. Nine inches of double wire braided high pressure hose. Fittings on both ends permit connecting Hydro-Pak to National Cylinder Gas connections (CGA No. 540).



6448 Charging Hose Assembly. Same as above but with air pressure gage, Tee Block 6258 and five foot hose.





## PREPARATION

First, check your tank pressure with your Scott 8365 pressure gage to determine how much air you have. After connecting the pressure gage to the cylinder valve, open slightly—enough to obtain a reading. Close the valve, remove the gage and connect the regulator, which comes packed separately.

After the regulator is connected, check the reserve air supply valve to be sure it's closed. Make sure the pointer is set into the indentation on the side. Open the cylinder valve. The demand regulator will not operate until you put on the face mask and close the "Air Econo-miser."

Slip into the shoulder straps and raise the Hydro-Pak onto the back. Adjust the waist strap to fit. Check to see that breathing hose comes over shoulder, through snap loop on top of right shoulder strap.

Open the "Air Econo-miser" and don the face mask—chin first. Be sure head harness is properly centered on back of head. Pull straps snug until you have a comfortable fit. Tighten bottom chin straps first.



A little experimenting will determine the amount of lead ballast weight you will need to offset your natural buoyancy. This should vary between approximately zero to nine pounds, depending on your size and equipment. Rubber suits, for instance, hold air and therefore require more ballast weight to maintain the neutral buoyancy desired.

You can buy a weight belt or make one yourself, but be sure it has a reliable quick-release fastener. This is obviously important. Many expert skindivers also use an inflatable life belt for surface support. Swim fins will help conserve your energy and air supply because they enable you to swim with less effort.

## **ENTERING WATER**

Your first swim should be in clear, chest-deep water. This will enable you to become familiar with the Hydro-Pak and develop your confidence.

Close the air economizer just before you submerge. Breathing through the Hydro-Pak automatically equalizes your internal body pressure with the surrounding water pressure. If you feel any pressure in your ears, swallowing or yawning will usually dispel it.

Never wear ear plugs. Water pressure may force them deep into the ears. At best they would be difficult to remove. They could even cause ruptured ear drums.

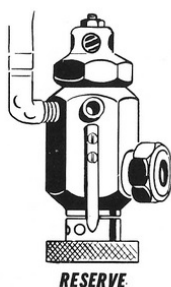
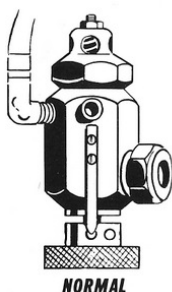
The best way to familiarize yourself with the water ejector button is to stand neckdeep in water, bend your knees and duck just under the surface. Lift the edge of the mask under the chin and press button at the same time. Notice the air escapes through the opening you have made on the edge of the mask. Now lift the edge of the mask and admit some water. Then raise the edge of the mask under the chin and press the ejector button to instantly clear the mask. The water leaves the mask at the lowest point.

## UNDER WATER



The amount of time you can remain underwater with a full tank of compressed air depends upon your physical requirements, the depth at which you operate and how much you exert yourself underwater.

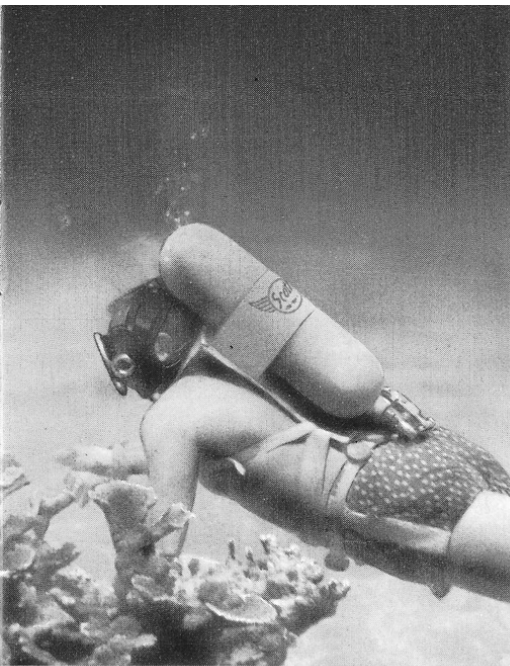
The automatic, air reserve warning-device signals when  $\frac{3}{4}$  of your air supply is used. Then it is time to reach back and turn on your reserve air supply. It is operated by the knurled valve that turns on only one way. To set the reserve valve correctly before entering water, turn until pointer tip sets into indentation on side of valve. The reserve is about  $\frac{1}{4}$  of the supply.



**Note:**

Normal Position—  
Ready for dive.

Reserve Position—  
Permits use of remaining air.



## LEAVING THE WATER

Experience shows that most underwater swimming is done at depths shallower than fifty feet. Considering the duration time available on even the largest capacity Hydro-Pak units, you need have little concern for decompression effects if you observe time limits shown in the Maximum Allowable Diving Time chart below. Most expert underwater swimmers use this rule of

thumb: Don't ascend from deeper to shallower water faster than the smallest visible bubbles of your exhaled air.

You should always continue to breathe naturally while underwater, especially when ascending. If your lungs are filled with air of the proper pressure for a deeper level and you rise to a shallower level while holding your breath, the air in your lungs will expand. This can be dangerous. The way to avoid it is to keep breathing naturally. *NEVER hold your breath!* Especially when ascending.

## MAXIMUM ALLOWABLE DIVING TIME IN ANY ONE DAY

DEPTH feet	DIVING TIME minutes	"Diving time" starts when the diver submerges, and ends when he surfaces. Whether the person makes one dive or several, the total time under water in one day should not exceed the time in minutes shown in the "Diving time" column opposite the greatest depth reached. For example, if a 90 ft. depth is reached, the total time under water that day should not exceed 30 minutes, even though the rest of the time is spent at shallower depths.
10	300	The table was compiled by outstanding diving experts, and should be followed by all users of self contained underwater breathing equipment. For further information consult the U. S. Navy Standard Air Decompression Tables.
20	150	
30	100	
40	75	
50	60	
60	50	
70	40	
80	35	
90	30	
100	25	
110	20	
120	15	

## MAINTENANCE

Your Hydro-Pak will give you dependable service indefinitely if it is properly cared for. The entire mask assembly including the air regulator and diaphragm should be inspected and rinsed in clear, fresh water after every use—particularly after use in salt water.

To open, remove rubber guard ring, lift one end of stainless steel retaining ring and peel off edge of the regulator housing. Remove the regulator cover. Take out rubber diaphragm and rinse all parts well in fresh water. Before reassembling, check diaphragm for signs of wear.

Be sure to allow the tube connecting the air regulator with the exhalation valve to drain before assembling the air regulator. If water remains in the tube after assembly it will result in constant flow underwater when exhalation valve is higher than the demand regulator. Water may be drained by unscrewing the plug on the exhalation valve. The slot is extra wide to permit using a coin.



The two-cylinder model may be recharged through the charging fitting on the first stage regulator without removing cylinders from the unit. Or the cylinders may be removed for recharging or replacement as on the single cylinder model.

When recharging through the charging fitting, the air reserve pointer must be in the reserve ON position.

Always recharge cylinders with pure compressed AIR—never use oxygen!

In rare cases the packing gland on the cylinder shut-off valve, especially when new, may leak slightly. Should this occur, merely tighten with your Hydro-Pak wrench.

Never completely deplete your air cylinders. A slight positive pressure helps keep them internally clean—free from particles of dirt, water and other foreign matter.

## SUMMARY

Become thoroughly familiar with the operation of the Hydro-Pak in shallow, chest-deep water before using it in deeper water.

Use only compressed AIR in the cylinders, never use *oxygen*.

Always breathe naturally underwater, never hold your breath—especially when ascending.

Never swim alone—use the buddy system.

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FORM NO. 832-A



Editor: Brian D. Szafranski  
Elma, New York USA – July 21, 2016

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